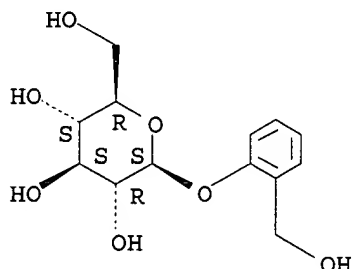


ACCESSION NUMBER: 2001:374468 CAPLUS  
 DOCUMENT NUMBER: 135:121411  
 TITLE: Biogeneration of flavors: performance of *Candida methanolovescens* strains in nonalcoholic beer  
 AUTHOR(S): Van den Bremt, K.; Delvaux, F. R.; Verachtert, H.; Derdelinckx, G.  
 CORPORATE SOURCE: Centre for Malting and Brewing Science, Faculty of Agricultural and Applied Biological Sciences, KU Leuven, Louvain, B-3001, Belg.  
 SOURCE: Journal of the American Society of Brewing Chemists (2001), 59(2), 80-83  
 CODEN: JSBCD3; ISSN: 0361-0470  
 PUBLISHER: American Society of Brewing Chemists, Inc.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB The possibility of using methylotrophic yeasts to produce flavor in beer was investigated. *Candida methanolovescens* was shown to produce a .beta.-glucosidase and an alc. oxidase that are active in nonalcoholic beer. Because the enzymes are repressed by glucose, a de-repressed mutant strain was compared to the wild type. It was found that this strain could hydrolyze the glucoside salicin and produce **salicyl** alc. and, more importantly, almond-flavored **salicyl** aldehyde in the beer. The treated beers were recognized by a sensory evaluation panel. This is the first report of a malt beverage being enriched by biol. produced flavor compds. The procedure offers very promising prospects for flavor improvement of beer or the introduction of new flavors using non-Saccharomyces yeasts.  
 IT 138-52-3, Salicin  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (biogeneration of flavors, performance of *Candida methanolovescens* strains in nonalc. beer)  
 RN 138-52-3 CAPLUS  
 CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 9 OF 36 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 2000:807464 CAPLUS  
 DOCUMENT NUMBER: 134:146438  
 TITLE: Production of almond flavoured **salicyl** aldehyde in batch cultures of *Candida methanolovescens* strains  
 AUTHOR(S): Van den Bremt, K.; Van der Plancken, I.; Delvaux, Fr.; Verachtert, H.; Derdelinckx, G.  
 CORPORATE SOURCE: Faculty of Agricultural and Applied Biological Sciences, Centre for Malting and Brewing Science, Catholic University Leuven, Heverlee, 3001, Belg.  
 SOURCE: Mededelingen - Faculteit Landbouwkundige en Toegepaste Biologische Wetenschappen (Universiteit Gent) (2000),

65(3a), 287-290

CODEN: MFLBER; ISSN: 1373-7503

PUBLISHER: Universiteit Gent, Faculteit Landbouwkundige en  
Toegepaste Biologische Wetenschappen

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Methylophilic yeasts, such as *Candida methanolovescens*, are useful for flavor prodn. By combining their alc. oxidase (AO) and .beta.-glucosidase (.beta.G), flavor aldehydes can be produced from flavorless glucosides with potential flavor characteristics. However, both enzymes are repressed by glucose and consequently by glucose-contg. glucosides after their hydrolysis. *C. methanolovescens* mutant strain 10B5 shows a reduced repression by salicin of AO as well as .beta.G synthesis. It thus allows a higher prodn. of **salicyl** alc. and the almond flavored **salicyl** aldehyde than the wild type strain. The mutant offers very promising prospects not only for the prodn. of flavor alcs. but also for the synthesis of flavor aldehydes from glucosides.

IT 138-52-3, Salicin

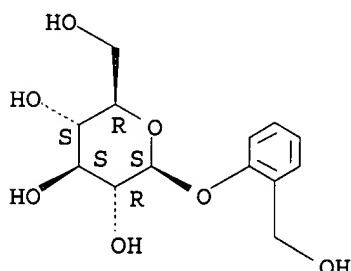
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)

(prodn. of almond flavored **salicyl** aldehyde in batch cultures  
of *Candida methanolovescens*)

RN 138-52-3 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 10 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2000:175903 CAPLUS

DOCUMENT NUMBER: 132:205130

TITLE: Methods for generating doubled haploid plants from  
microspores

INVENTOR(S): Konzak, Calvin F.; Polle, Enrique A.; Liu, Weiguo;  
Zheng, Yuanming

PATENT ASSIGNEE(S): USA

SOURCE: PCT Int. Appl., 43 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

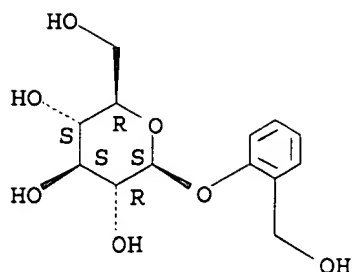
FAMILY ACC. NUM. COUNT: 4

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000014202	A1	20000316	WO 1999-US19498	19990826
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK,				

SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY,  
 KG, KZ, MD, RU, TJ, TM  
 RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK,  
 ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG,  
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 AU 9956932 A1 20000327 AU 1999-56932 19990826  
 EP 1112347 A1 20010704 EP 1999-943940 19990826  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
 IE, SI, LT, LV, FI, RO  
 BR 9913534 A 20020702 BR 1999-13534 19990826  
 WO 2001014518 A2 20010301 WO 2000-US18790 20000823  
 WO 2001014518 A3 20011018  
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,  
 CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,  
 HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,  
 LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU,  
 SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN,  
 YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,  
 DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ,  
 CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG  
 AU 2000070518 A5 20010319 AU 2000-70518 20000823  
 EP 1206524 A2 20020522 EP 2000-959147 20000823  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
 IE, SI, LT, LV, FI, RO, MK, CY, AL  
 US 2002104128 A1 20020801 US 2002-42932 20020108  
 PRIORITY APPLN. INFO.: US 1998-99633P P 19980909  
 US 1999-150761P A2 19990826  
 US 1999-383588 A2 19990826  
 WO 1999-US19498 W 19990826  
 WO 2000-US18790 W 20000823  
 AB The present invention provides methods for generating doubled haploid  
 and/or haploid plants from microspores. In a presently preferred  
 embodiment of the methods of the present invention, plant material is  
 selected that bears reproductive organs contg. microspores at a  
 developmental stage that is amenable to androgenic induction. The  
 microspores are treated by contacting the selected plant material with  
 water and subjecting the selected plant material to temp. stress, and  
 optionally to nutrient stress. Preferably the selected plant material is  
 contacted with an effective amt. of a sporophytic development inducer and  
 an effective amt. of an auxin and/or cell spindle inhibiting agent.  
 Optionally, the selected plant material is contacted with an effective  
 amt. of a cytokinin and/or an effective amt. of a gibberellin. The  
 treated microspores are isolated, preferably by d. centrifugation  
 utilizing a soln. of 0.3 M mannitol layered over a higher d. soln. of a  
 sugar, preferably maltose. The isolated, treated microspores are then  
 cultured in a liq. nutrient suspension medium supplemented with at least  
 one plant ovary or with an aliquot of plant ovary conditioned medium,  
 until the microspores develop into embryoids. The embryoids are  
 transferred to a regeneration medium and incubated therein until the  
 embryoids develop into plants. The resulting plants may be haploid or  
 doubled haploid and may also be genetically transformed. Doubled haploid  
 wheat plants were generated from microspores.  
 IT 138-52-3, Salicin  
 RL: BUU (Biological use, unclassified); BIOL (Biological study); USES  
 (Uses)  
 (generating doubled haploid plants from microspores)  
 RN 138-52-3 CAPLUS  
 CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 11 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1999:369672 CAPLUS

DOCUMENT NUMBER: 131:113804

TITLE: Leaf phenolics of three willow clones differing in resistance to Melampsora rust infection

AUTHOR(S): Hakulinen, Johanna; Sorjonen, Sanja; Julkunen-Tiitto, Riitta

CORPORATE SOURCE: Department of Biology, University of Joensuu, Joensuu, FIN-80101, Finland

SOURCE: Physiologia Plantarum (1999), 105(4), 662-669

CODEN: PHPLAI; ISSN: 0031-9317

PUBLISHER: Munksgaard International Publishers Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Leaf phenolic compn. in three *Salix myrsinifolia* Salisb, clones (V8, V45, and V43), inoculated with *Melampsora* rust, was analyzed to detect local rust-induced alterations during different stages of infection (2, 7, and 21 days after inoculation [DAI]). Phenolic levels and percentage of uredial area varied significantly between clones. In the most resistant clone, V8, the levels of some phenolic compds. were lower in rust-infected plants than in control plants at the initial stages of rust infection, suggesting a rapid response of phenolic metab. to rust attack. Moreover, the clone V8 contained the highest constitutive (+)-catechin level. In clone V45, rust infection caused the most pronounced increase in the levels of individual phenolics at 7 DAI. This increase may have been effective in retarding the subsequent spread and development of rust. In the most susceptible clone V43, rust-induced phenolic responses were less pronounced and delayed. The results suggest that in specific willow-rust interactions, constitutive levels of phenolics, as well as induced phenolic responses, may contribute to the expression of rust resistance. In general, rust-induced alterations in willow phenolic levels are highly specific to genotype and compd. and vary depending on the stage of rust development.

IT 138-52-3, Salicin 29836-41-7, Salicortin 232920-89-7

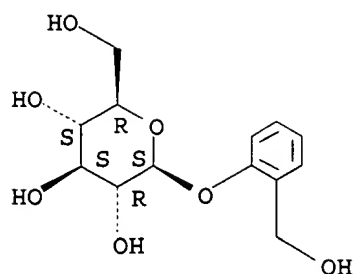
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)

(of willow in relation to *Melampsora* rust infection resistance)

RN 138-52-3 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

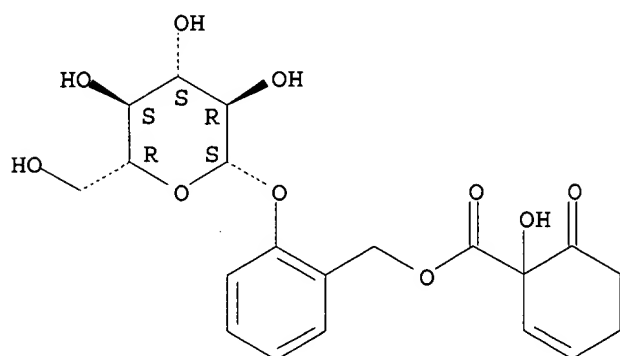
Absolute stereochemistry.



RN 29836-41-7 CAPLUS

CN .beta.-D-Glucopyranoside, 2-[[[(1-hydroxy-6-oxo-2-cyclohexen-1-yl)carbonyl]oxy]methyl]phenyl (9CI) (CA INDEX NAME)

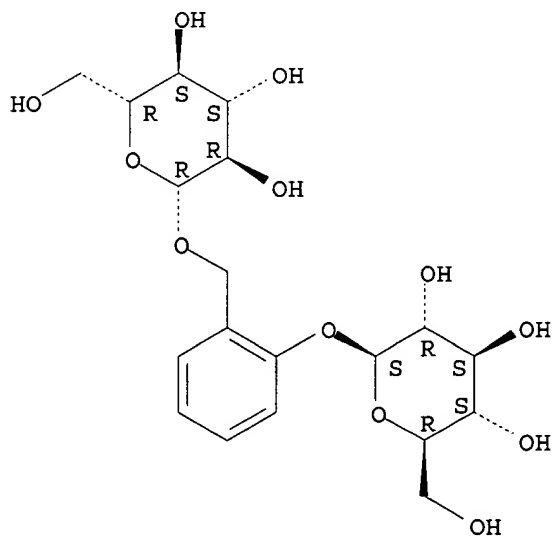
Absolute stereochemistry.



RN 232920-89-7 CAPLUS

CN .beta.-D-Glucopyranoside, 2-[(.beta.-D-glucopyranosyloxy)methyl]phenyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.



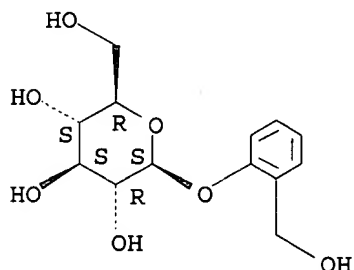
REFERENCE COUNT:

20

THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

ACCESSION NUMBER: 1998:471803 CAPLUS  
 DOCUMENT NUMBER: 129:188476  
 TITLE: Determination of salicin and related compounds in botanical dietary supplements by liquid chromatography with fluorescence detection  
 AUTHOR(S): Luo, Wenhong; Ang, Catharina Y. W.; Schmitt, Thomas C.; Betz, Joseph M.  
 CORPORATE SOURCE: National Center for Toxicological Research, Division of Microbiology and Chemistry, U.S. Food and Drug Administration, Jefferson, AR, 72079-9502, USA  
 SOURCE: Journal of AOAC International (1998), 81(4), 757-762  
 CODEN: JAINEE; ISSN: 1060-3271  
 PUBLISHER: AOAC International, Inc.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB A sensitive and reliable method is described for quant. detn. of salicin (including salicyl alc.) and salicylic acid in botanical dietary supplements by reversed-phase liq. chromatog. (LC) with wavelength-programmed fluorescence detection. One gram sample material was extd. with 20 mL aq. phosphate buffer (pH 5.0), which was heated in an 80.degree.C water bath for 30 min. After centrifugation and cooling of the ext. to room temp., the supernatant was dild. with addnl. buffer. A 1 mL portion of dild. ext. was mixed with 1 mL .beta.-glucosidase soln. (2 mg/mL) and incubated for 40 min in a 37.degree.C water bath. The ext. was passed through a 0.45 mg syringe filter and analyzed by LC. Limits of quantitation for salicin and salicylic acid were 20 and 1 .mu.g/g, resp. Recoveries from samples fortified with salicin at 20, 100, and 1000 .mu.g/g and with salicylic acid at 5, 20, and 50 .mu.g/g ranged from 85 to 110%, with std. deviations less than 7%.  
 IT 138-52-3, Salicin  
 RL: ANT (Analyte); POL (Pollutant); ANST (Analytical study); OCCU (Occurrence)  
 (detn. of salicin and related compds. in botanical dietary supplements by liq. chromatog. with fluorescence detection)  
 RN 138-52-3 CAPLUS  
 CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 13 OF 36 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1998:293919 CAPLUS  
 DOCUMENT NUMBER: 128:316926  
 TITLE: Inhibition by Salix-extracts and Phytodolor of copper-catalyzed oxidative destructions  
 AUTHOR(S): Rohnert, Ute; Koske, Dagmar; Schneider, Werner; Elstner, Erich F.  
 CORPORATE SOURCE: Labor Angewandte Biochemie, Technische Universitaet Muenchen, Freising, D-85350, Germany  
 SOURCE: Zeitschrift fuer Naturforschung, C: Biosciences

(1998), 53(3/4), 233-240

CODEN: ZNCBDA; ISSN: 0341-0382

PUBLISHER: Verlag der Zeitschrift fuer Naturforschung

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Oxidn. of low d. lipoprotein (LDL) by Cu ions is strongly inhibited by different aq. exts. (Salix spec (SE); Fraxinus-Solidago-Populus (Phytodolor)(PD)) in a concn. range between 4-7 .mu.g/mL. 10-50 .mu.M salicylic acid (SA) stimulate LDL-oxidn. whereas higher concns. (10-500 .mu.M) show no effect. Likewise ethene release from 2-keto-4-methylthiobutyrate (KMB) is strongly inhibited by the above exts. in a reaction driven by dihydroxyfumarate (DHF) in the presence of Cu ions. This system may represent some features of the diabetic situation where DHF as an endiole may stand for certain Amadori products. To find out whether the inhibitory effects are due to Cu chelation the copper-dependent conversion was tested of photodynamic ethane release from .alpha.-linolenic acid into ethene formation. Cu chelation is only partially involved in inhibition of Cu-dependent oxidns. and only at a certain concn. of exts. from SE or exts. from PD.

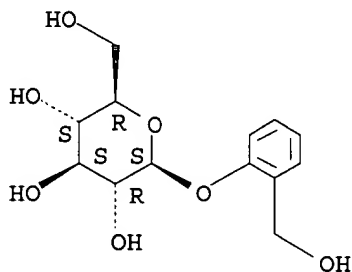
IT 138-52-3P, Salicin

RL: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); BSU (Biological study, unclassified); PUR (Purification or recovery); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation) (compd. of Salix-ext., plant antioxidants as Cu-chelators)

RN 138-52-3 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L5 ANSWER 14 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1997:586188 CAPLUS

DOCUMENT NUMBER: 127:260167

TITLE: Glucosylation of salicyl alcohol by cell

suspension cultures of Solanum mammosum

AUTHOR(S): Syahrani, Achmad; Indrayanto, Gunawan; Wilkins, Alistair; Sutarjadi

CORPORATE SOURCE: Laboratory of Pharmaceutical Biotechnology, Faculty of Pharmacy, Airlangga University, Surabaya, 60268, Indonesia

SOURCE: Natural Product Sciences (1997), 3(1), 71-74

CODEN: NPSCFB; ISSN: 1226-3907

PUBLISHER: Korean Society of Pharmacognosy

DOCUMENT TYPE: Journal

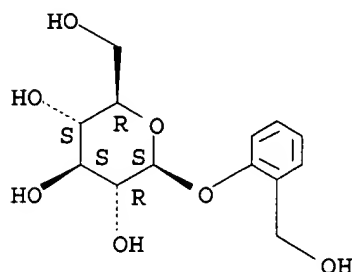
LANGUAGE: English

AB Cell suspension cultures of Solanum mammosum transformed inoculated salicyl alc. into salicin (salicyl alc. 2-O-.beta.-D-glucopyranoside). The highest level of salicin (59.3 mg/flask) in the cells was formed within 3 days after inoculating with salicyl alc. (50 mg / flask contg. 50 mL medium). The glucosylation capability of salicyl alc. by cell suspension cultures of S. mammosum was relatively higher than that reported

previously.

IT 138-52-3, Salicin  
RL: BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative)  
(glucosylation of **salicyl** alc. by cell suspension cultures of *Solanum mammosum*)  
RN 138-52-3 CAPLUS  
CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L5 ANSWER 15 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1997:216732 CAPLUS

DOCUMENT NUMBER: 126:314800

TITLE: Water-soluble phenolic glycosides from leaves of *Alangium premnifolium*

AUTHOR(S): Kijima, Hidehiko; Ide, Toshinori; Otsuka, Hideaki; Ogimi, Choei; Hirata, Eiji; Takushi, Anki; Takeda, Yoshio

CORPORATE SOURCE: Inst. Pharmaceutical Sci., Hiroshima Univ. School Medicine, Hiroshima, 734, Japan

SOURCE: Phytochemistry (1997), 44(8), 1551-1557

CODEN: PYTCAS; ISSN: 0031-9422

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB From the water-sol. fraction of a methanol ext. of leaves of *Alangium premnifolium*, guaiacylglycerol and syringoylglycerol glucosides, benzyl alc. triglycosides, **salicyl** alc. glycoside, a deriv. of henryoside, 3,4-dihydroxyphenethyl alc. glycoside and pyrocatechol diglucoside were isolated. Their structures were elucidated from spectroscopic evidence.

IT 189390-52-1P

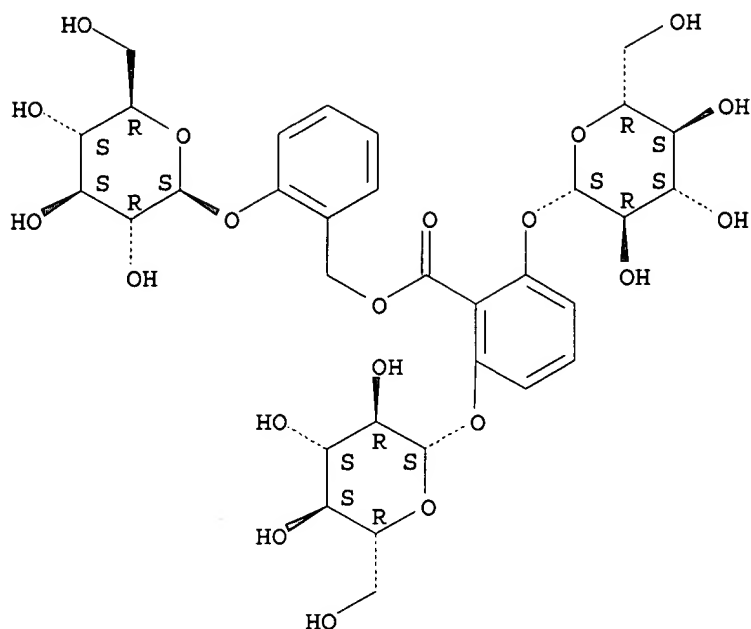
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); PUR (Purification or recovery); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation)  
(water-sol. phenolic glycosides from leaves of *Alangium premnifolium*)

RN 189390-52-1 CAPLUS

CN .beta.-D-Glucopyranoside, 2-[[[2,6-bis(.beta.-D-glucopyranosyloxy)benzoyl]oxy]methyl]phenyl (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).





L5 ANSWER 16 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1996:668128 CAPLUS

DOCUMENT NUMBER: 125:323005

TITLE: Chemical studies on antituberculosis compounds from *Salix capitata*

AUTHOR(S): Keapigu, M. C.; Wang, Mingshi

CORPORATE SOURCE: Dep. of Phytochemistry, China pharmaceutical Univ., Nanjing, 210009, Peop. Rep. China

SOURCE: Zhongguo Yaoke Daxue Xuebao (1996), 27(5), 271-273

CODEN: ZHYXE9; ISSN: 1000-5048

PUBLISHER: Zhongguo Yaoke Daxue

DOCUMENT TYPE: Journal

LANGUAGE: English

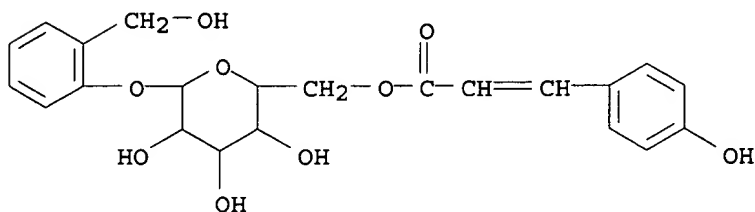
AB Ten constituents were isolated from the tender leaves of *S. capitata*, and identified as .beta.-sitosterol, stigmasterol, p-hydroxystyrene, cinnamic acid, **salicyl alc.**, pyrocatechol, protocatechuic acid, daucosterol, salicin, and trichocarposide. P-hydroxystyrene was effective in inhibiting human mycobacterium tuberculosis. The structure of trichocarposide was cor. according to the exptl. data.

IT **17063-94-4**, Trichocarposide

RL: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); USES (Uses)  
(antituberculosis compds. from *Salix capitata*)

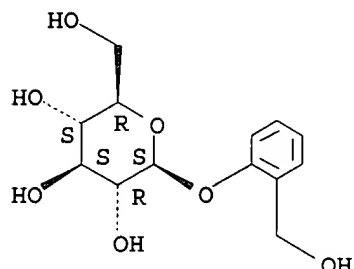
RN 17063-94-4 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl, 6-[3-(4-hydroxyphenyl)-2-propenoate] (9CI) (CA INDEX NAME)



IT 138-52-3, Salicin  
 RL: BOC (Biological occurrence); BSU (Biological study, unclassified);  
 BIOL (Biological study); OCCU (Occurrence)  
 (from *Salix capitata*)  
 RN 138-52-3 CAPLUS  
 CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L5 ANSWER 17 OF 36 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1996:433969 CAPLUS  
 DOCUMENT NUMBER: 125:82364  
 TITLE: Chemoecological studies of the exocrine glandular larval secretions of two chrysomelid species (Coleoptera): *Phaedon cochleariae* and *Chrysomela lapponica*  
 AUTHOR(S): Gross, Juergen; Hilker, Monika  
 CORPORATE SOURCE: Institut Zoologie, Freie Universitaet Berlin, Berlin, D-12163, Germany  
 SOURCE: Chemoecology (1995), Volume Date 1994-1995, 5/6(3/4), 185-189  
 CODEN: CHMOE9; ISSN: 0937-7409  
 PUBLISHER: Birkhaeuser  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB The exocrine glandular secretions of larvae of the subfamily Chrysomelinae are known to repel conspecific adults, other competitive phytophagous insects and natural enemies. In *Phaedon cochleariae*, the intraspecific activity of the fractions of the larval secretion was tested to examine the ecol. significance of two fractions contg. minor components and a fraction contg. the major compd., the cyclopentanoid monoterpene (epi)chrysomelidial. In *Chrysomela lapponica*, the defensive activity of the larval secretion against ants is known from specimens feeding upon willow or birch. The feeding preferences of larvae and adults of *C. lapponica* from a Finnish and a Czech population were tested. The Finnish individuals significantly preferred feeding upon *Salix borealis*, whereas they hardly fed upon birch. The Czech specimens clearly preferred birch (*Betula pubescens*) to willow species. Application of salicin onto leaves of a willow species free of this phenolglycoside revealed that the Finnish individuals preferred feeding upon leaves with salicin. The Czech individuals avoided feeding upon leaves of *B. pubescens* treated with salicin. The chem. compn. of the glandular secretion of the Finnish larvae differed from the one of the Czech larvae. GC-MS-analyses of the secretions revealed that salicylaldehyde was the only major component of the secretion of Finnish larvae feeding upon the salicin-contg. willow *S. borealis*. The glandular secretion of the Czech larvae feeding upon birch contained numerous esters of isobutyric acid and 2-methylbutyric acid. When Czech larvae had fed upon a salicin-contg. willow (*S. fragilis*), the major compds. of their secretion were benzoic acid, **salicyl alc.** and benzoic acid esters; salicylaldehyde was only detected in traces. Thus, *C. lapponica* individuals from the Finland population adapted so

closely to a salicin-contg. willow that they clearly prefer this plant for food and that they obviously derive their main larval defensive compd. (salicylaldehyde) from their host-plant.

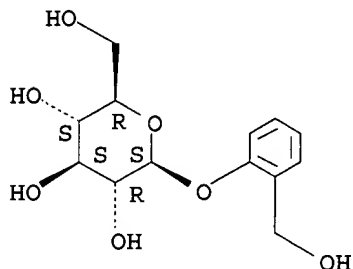
IT 138-52-3, Salicin

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)  
(chemoecol. studies of exocrine glandular larval secretions of two chrysomelid species (Coleoptera))

RN 138-52-3 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L5 ANSWER 18 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1994:454014 CAPLUS

DOCUMENT NUMBER: 121:54014

TITLE: Carbohydrate mobilization following shoot defoliation and decapitation in hybrid poplar

AUTHOR(S): Tschaplinski, Timothy J.; Blake, Terence J.

CORPORATE SOURCE: Environ. Sci. Div., Oak Ridge Natl. Lab., Oak Ridge, TN, 37831-6034, USA

SOURCE: Tree Physiology (1994), 14(2), 141-51

CODEN: TRPHEM; ISSN: 0829-318X

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The effects of shoot defoliation, decapitation, and disbudding on carbon mobilization were investigated in rooted cuttings of *Populus maximowiczii* .times. *nigra* L. 'MN9'. Ten days after complete shoot defoliation or decapitation, the stem starch concn. of treated plants declined to one-half that of intact plants, and there were similar or greater redns. in the concns. of glucose, fructose, sucrose, galactose, and shikimic acid. Partial shoot defoliation (50%) and complete disbudding had no effect on stem starch concn., but stem sucrose concn. was reduced in all treatments. Sucrose depletion preceded and may have induced other changes in the carbon status of plants subjected to leaf or shoot removal. Four days after shoot decapitation, the sucrose concn. of roots of treated plants was reduced to 25% that of intact plants. However, the concns. of fructose and glucose increased in the roots of treated plants and was followed by the accumulation of shikimic acid, **salicyl alc.**, unknown compd. A and salicin. The possible role of increased concns. of root org. solutes in the water relations and regrowth process of decapitated plants is discussed.

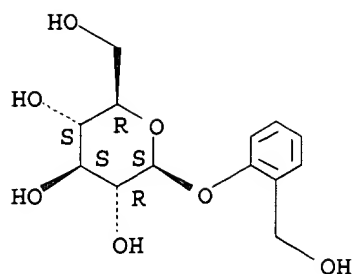
IT 138-52-3, Salicin

RL: BIOL (Biological study)  
(of poplar hybrid, following shoot defoliation and decapitation)

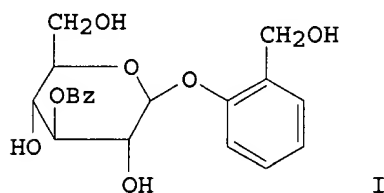
RN 138-52-3 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.

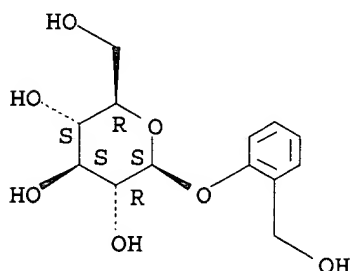


L5 ANSWER 19 OF 36 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1992:18379 CAPLUS  
 DOCUMENT NUMBER: 116:18379  
 TITLE: Chaenomeloidin: a phenolic glucoside from leaves of *Salix chaenomeloides*  
 AUTHOR(S): Mizuno, Mizuo; Kato, Masaya; Misu, Chiemi; Iinuma, Munekazu; Tanaka, Toshiyuki  
 CORPORATE SOURCE: Dep. Pharmacogn., Gifu Pharm. Univ., Gifu, 502, Japan  
 SOURCE: Journal of Natural Products (1991), 54(5), 1447-50  
 CODEN: JNPRDF; ISSN: 0163-3864  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 GI



AB A new phenolic glucoside, chaenomeloidin (I), was isolated from the leaves of *S. chaenomeloides* together with salicin, tremuloidin, tremulacin, salicyloyltremuloidin, hyperin, quercitrin, rutin, isorhamnetin-3-O-glucoside, and isorhamnetin-3-O-rutinoside. The structure of I was established to be **salicyl alc.-1-O-.beta.-D-(3'-benzoyl)glucopyranoside** by spectral anal.  
 IT 138-52-3, Salicin 529-66-8, Tremuloidin 10059-19-5 29836-40-6, Tremulacin  
 RL: BIOL (Biological study)  
 (from *Salix chaenomeloides* leaves)  
 RN 138-52-3 CAPLUS  
 CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

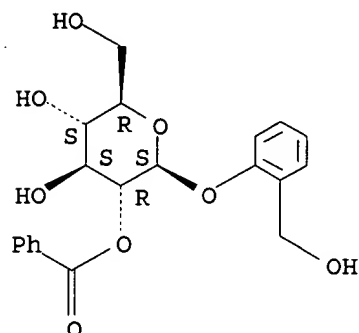
Absolute stereochemistry.



RN 529-66-8 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl, 2-benzoate (9CI) (CA INDEX NAME)

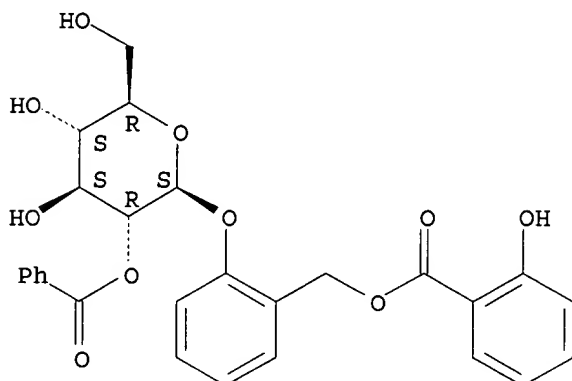
Absolute stereochemistry.



RN 10059-19-5 CAPLUS

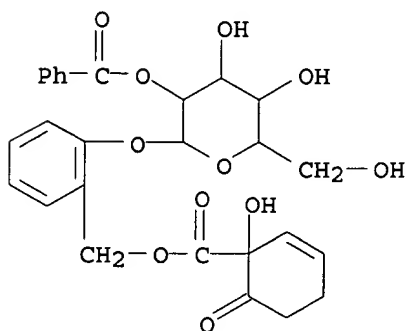
CN .beta.-D-Glucopyranoside, 2-[[[(2-hydroxybenzoyl)oxy]methyl]phenyl, 2-benzoate (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 29836-40-6 CAPLUS

CN .beta.-D-Glucopyranoside, 2-[[[(1-hydroxy-6-oxo-2-cyclohexen-1-yl)carbonyl]oxy]methyl]phenyl, 2-benzoate (9CI) (CA INDEX NAME)



IT 138101-84-5, Chaenomeloidin

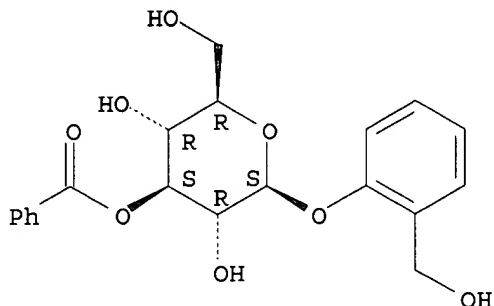
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)

(of *Salix chaenomeloides* leaves, isolation and structure detn. of)

RN 138101-84-5 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl, 3-benzoate (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L5 ANSWER 20 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1990:158825 CAPLUS

DOCUMENT NUMBER: 112:158825

TITLE: Preparation of (hydroxymethyl)phenol glycosides

INVENTOR(S): Kinomura, Keisuke; Sakakibara, Toshiyuki

PATENT ASSIGNEE(S): Nippon Seika K. K., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

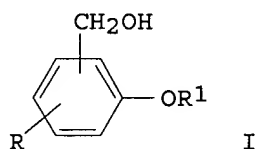
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 01249796	A2	19891005	JP 1988-77690	19880330

OTHER SOURCE(S): MARPAT 112:158825

GI



AB The title compds. I (R = H, Me; R<sub>1</sub> = acylated sugar residue), are prepd. in high yield by selective glycosidation of I (R = H, Me; R<sub>1</sub> = H) with acylated sugars in presence of heteropoly acids. Thus, a soln. contg. pentaacetyl-.beta.-D-glucopyranose and salicyl alc. in diethylene glycol di-Bu ether was stirred with 12-molybdophosphoric acid at 100-110.degree. and 20 mmHg for 2.5 h to give 64% tetra-O-acetylsalicin.

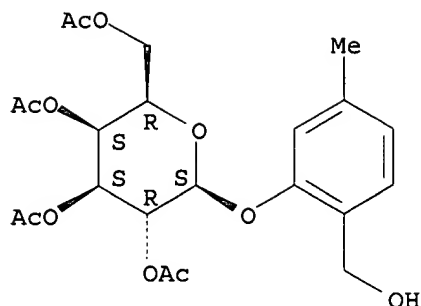
IT 121283-18-9P 122186-40-7P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of)

RN 121283-18-9 CAPLUS

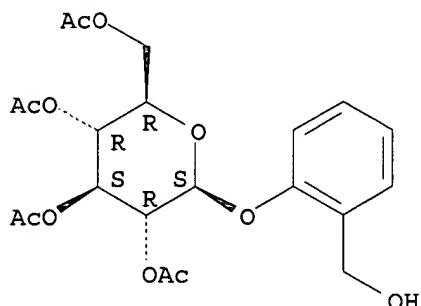
CN .beta.-D-Galactopyranoside, 2-(hydroxymethyl)-5-methylphenyl,  
2,3,4,6-tetraacetate (9CI) (CA INDEX NAME)

Absolute stereochemistry.



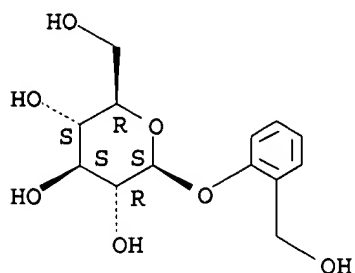
RN 122186-40-7 CAPLUS  
 CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl, 2,3,4,6-tetraacetate  
 (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L5 ANSWER 21 OF 36 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1990:18845 CAPLUS  
 DOCUMENT NUMBER: 112:18845  
 TITLE: Phenolic constituents of Salix: a chemotaxonomic survey of further Finnish species  
 AUTHOR(S): Julkunen-Tiitto, R.  
 CORPORATE SOURCE: Dep. Biol., Univ. Joensuu, Joensuu, 80101, Finland  
 SOURCE: Phytochemistry (1989), 28(8), 2115-25  
 CODEN: PYTCAS; ISSN: 0031-9422  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Various parts of some 30 Salix (willow) species were screened for 14 simple phenolic glucosides and **salicyl** alc. Species-specific qual. and quant. variation of phenolic glucosides in willow species was considerable and dependent on the part of the plant examd. Generally, there was greater diversity in glucoside compn. and a higher total amt. of glucosides in the twigs than in the leaves and buds. The traditional classification turned out to be inconsistent with a classification based on phenolic glucosides only. However, simple phenolic glucosides can be used for the recognition of exomorphol. similar species and hybrid forms. **Salicyl** alc. was not detected in any of the willow exts.  
 IT 138-52-3, Salicin 529-66-8, Tremuloidin 16955-55-8, Salireposide 19764-02-4, Fragilin. 29836-40-6, Tremulacin 29836-41-7, Salicortin 113270-30-7  
 RL: BIOL (Biological study)  
 (of Salix species, chemotaxonomy in relation to)  
 RN 138-52-3 CAPLUS  
 CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

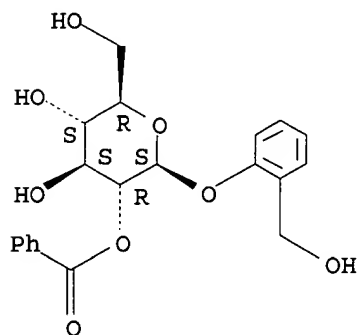
Absolute stereochemistry.



RN 529-66-8 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl, 2-benzoate (9CI) (CA INDEX NAME)

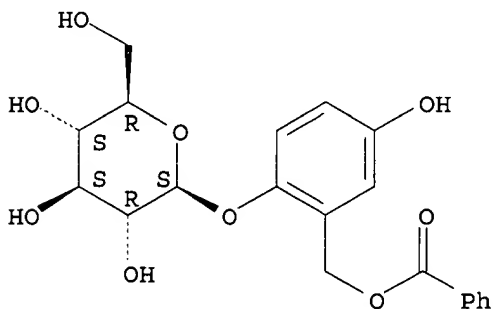
Absolute stereochemistry.



RN 16955-55-8 CAPLUS

CN .beta.-D-Glucopyranoside, 2-[(benzoyloxy)methyl]-4-hydroxyphenyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.

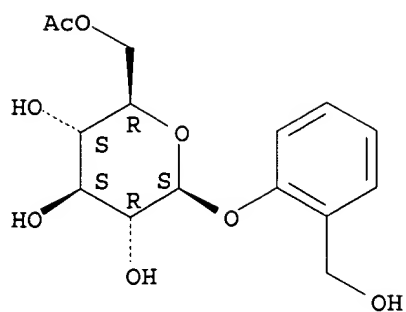


RN 19764-02-4 CAPLUS

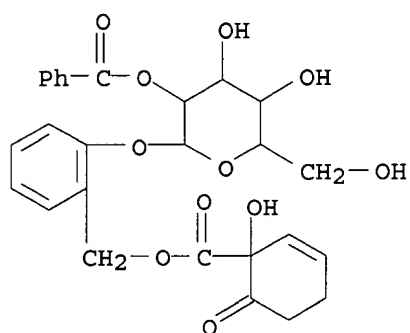
CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl, 6-acetate (9CI) (CA INDEX NAME)

Absolute stereochemistry.



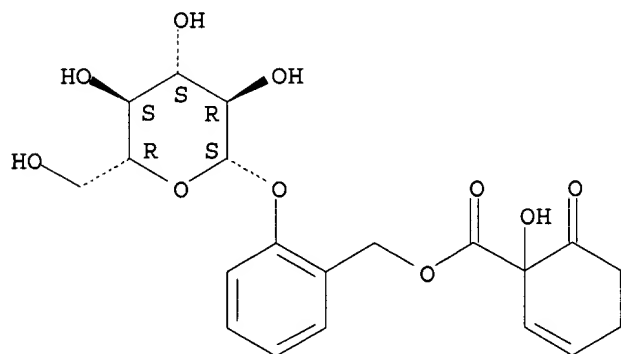


RN 29836-40-6 CAPLUS  
 CN .beta.-D-Glucopyranoside, 2-[[[(1-hydroxy-6-oxo-2-cyclohexen-1-yl)carbonyl]oxy]methyl]phenyl, 2-benzoate (9CI) (CA INDEX NAME)

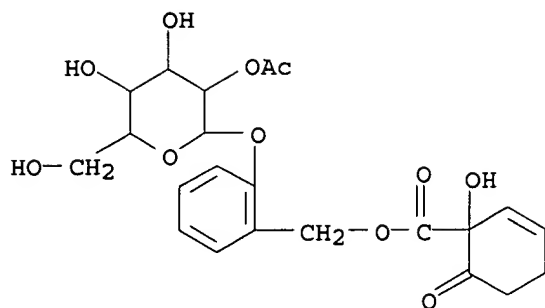


RN 29836-41-7 CAPLUS  
 CN .beta.-D-Glucopyranoside, 2-[[[(1-hydroxy-6-oxo-2-cyclohexen-1-yl)carbonyl]oxy]methyl]phenyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 113270-30-7 CAPLUS  
 CN .beta.-D-Glucopyranoside, 2-[[[(1-hydroxy-6-oxo-2-cyclohexen-1-yl)carbonyl]oxy]methyl]phenyl, 2-acetate (9CI) (CA INDEX NAME)



L5 ANSWER 22 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1989:554289 CAPLUS

DOCUMENT NUMBER: 111:154289

TITLE: Heteropoly acids as glycosidation catalysts and process for preparing glycoside derivatives

INVENTOR(S): Kinomura, Keisuke; Kitazawa, Sadaya; Takata, Yasushi; Sakakibara, Toshiyuki

PATENT ASSIGNEE(S): Nippon Fine Chemical Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 11 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 263027	A1	19880406	EP 1987-402167	19870929
EP 263027	B1	19901114		
R: CH, DE, FR, GB, LI, NL, SE				
JP 63084637	A2	19880415	JP 1986-230485	19860929
JP 06015043	B4	19940302		
JP 63159391	A2	19880702	JP 1986-307434	19861222
CA 1291983	A1	19911112	CA 1987-548058	19870928
US 4874852	A	19891017	US 1989-321809	19890310
PRIORITY APPLN. INFO.:			JP 1986-230485	19860929
			JP 1986-307434	19861222
			US 1987-101458	19870928

OTHER SOURCE(S): CASREACT 111:154289

AB Heteropoly acids  $\text{H}_a\text{X}_p\text{M}_q\text{O}_r \cdot b\text{H}_2\text{O}$  (I; X = P, As, Si, Ge; M = at least one species selected from Mo, W or V; a = 3, 4, 6; b = 0-30; p = 1, 2; q = 12, 18; r = 40, 62; provided that when X = P or As, a = 3 or 6; when X = Si or Ge, a = 3; when X = Si or Ge and a = 4, M = at least one species selected from Mo, W, and V, p = 1, q = 12 and r = 40; when X = P or As, a = 6, M = Mo or W, p = 2, q = 18, and r = 62) are effective as catalysts for conversion of a saccharide compd. to a glycoside deriv. In 100 mL PhMe were dissolved 0.10 pentaacetylglucose and 0.15 mol hydroquinone. After adding 0.5 12-molybdophosphoric acid and 0.1  $\text{Ni}_2\text{SO}_4$ , the mixt. was heated at 100.degree. for 4 h to give 65% 2,3,4,6-tetra-O-acetylalbutin.

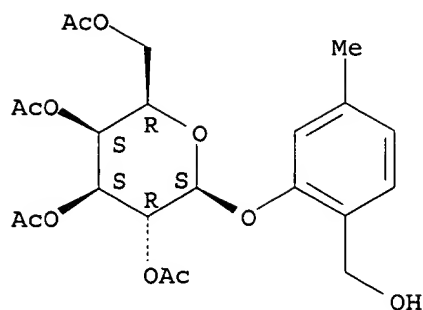
IT 121283-18-9P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of, by molybdophosphoric acid-catalyzed glycosidation with pentaacetylgalactopyranose)

RN 121283-18-9 CAPLUS

CN .beta.-D-Galactopyranoside, 2-(hydroxymethyl)-5-methylphenyl, 2,3,4,6-tetraacetate (9CI) (CA INDEX NAME)

Absolute stereochemistry.



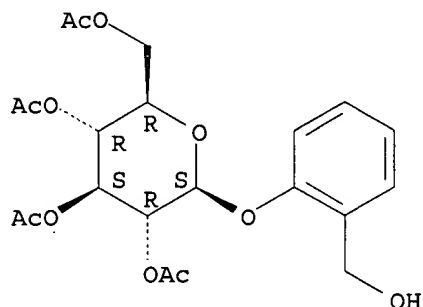
IT 122186-40-7P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of, by molybdophosphoric acid-catalyzed glycosidation with  
pentaacetylglucose)

RN 122186-40-7 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl, 2,3,4,6-tetraacetate  
(9CI) (CA INDEX NAME)

Absolute stereochemistry.



L5 ANSWER 23 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1986:549810 CAPLUS

DOCUMENT NUMBER: 105:149810

TITLE: Glucosylation of phenolic compounds in cultured plant cells

AUTHOR(S): Mizukami, Hajime

CORPORATE SOURCE: Fac. Pharm. Sci., Nagasaki Univ., Nagasaki, 852, Japan

SOURCE: Shokubutsu Soshiki Baiyo (1986), 3(1), 35-7

CODEN: SSBAET; ISSN: 0289-5773

DOCUMENT TYPE: Journal

LANGUAGE: Japanese

AB Conversion products of **salicyl** alc. (I) in the liq. cell culture of various plants were examd. by TLC and HPLC. Most of the conversion products included isosalicin (II), but main product was salicin (III) in *Cardenia jasminoides* and *Lithospermum erythrorhizon*. Glucosylation rate of I was the highest in cells in logarithmic growth, with a gradual decrease to steady state. The ratio of II to III was 20% in the former cells, but 40% in the steady state cells.

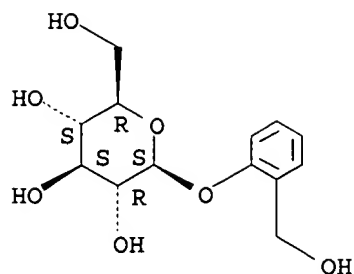
IT 138-52-3

RL: FORM (Formation, nonpreparative)  
(formation of, from **salicyl** alc. in plant cell cultures)

RN 138-52-3 CAPLUS

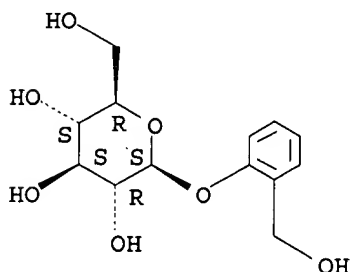
CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L5 ANSWER 24 OF 36 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1986:439461 CAPLUS  
 DOCUMENT NUMBER: 105:39461  
 TITLE: Glucosylation of **salicyl** alcohol by *Gardenia jasminoides* cell cultures  
 AUTHOR(S): Mizukami, Hajime; Terao, Toshimitsu; Amano, Akemi; Ohashi, Hiromu  
 CORPORATE SOURCE: Fac. Pharm. Sci., Nagasaki Univ., Nagasaki, 852, Japan  
 SOURCE: Plant and Cell Physiology (1986), 27(4), 645-50  
 CODEN: PCPHA5; ISSN: 0032-0781  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Cultured cells of *G. jasminoides* produced both salicin and isosalicin from exogenously supplied **salicyl** alc. The glucosylation activity of the cells was highest in the exponential phase of growth and .apprx.70% of the added substrate was converted to the glucosides within 4 days. The rate of glucosylation was also dependent on the medium compn., such as auxin and sucrose concns. The ratio of salicin to isosalicin formed from **salicyl** alc. was influenced by the growth stage of the cultured cells. Salicin was converted to isosalicin when exogenously added to the culture.  
 IT 138-52-3  
 RL: FORM (Formation, nonpreparative)  
 (formation of, from **salicyl** alc. in *Gardenia jasminoides* cell cultures)  
 RN 138-52-3 CAPLUS  
 CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L5 ANSWER 25 OF 36 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1984:135916 CAPLUS  
 DOCUMENT NUMBER: 100:135916  
 TITLE: Position-specific glucosylation of **salicyl** alcohol with an enzyme preparation from *Gardenia jasminoides* cultured cells  
 AUTHOR(S): Terao, T.; Ohashi, H.; Mizukami, H.  
 CORPORATE SOURCE: Fac. Pharm. Sci., Nagasaki Univ., Nagasaki, 852, Japan

SOURCE: Plant Science Letters (1984), 33(1), 47-52  
 CODEN: PTSLAF; ISSN: 0304-4211

DOCUMENT TYPE: Journal

LANGUAGE: English

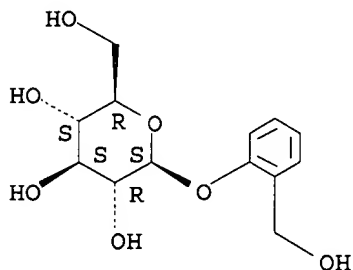
AB An enzyme activity catalyzing position-specific glucosylation of **salicyl** alc. to form salicin was demonstrated in a partially purified enzyme prepn. from cultured cells of *G. jasminoides*. The reaction proceeded linearly with respect to time and protein concn. and had a pH optimum of 9.0 and a temp. optimum of 50.degree.. Normal Michaelis-Menten kinetics were obsd. for the substrates **salicyl** alc. ( $K_m = 0.53$  mM) and UDP-glucose (0.64 mM). Formation of isosalicin was not detected with the present enzyme prepn. The new enzyme described here can be classified as UDP-glucose:**salicyl** alc. phenyl-glucosyltransferase.

IT 138-52-3  
 RL: FORM (Formation, nonpreparative)  
 (formation of, by position-specific glucosylation of **salicyl** alc. by enzyme from *Gardenia jasminoides*)

RN 138-52-3 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L5 ANSWER 26 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1983:609899 CAPLUS

DOCUMENT NUMBER: 99:209899

TITLE: Glucosylation of **salicyl** alcohol in cultured plant cells

AUTHOR(S): Mizukami, Hajime; Terao, Toshimitsu; Miura, Hiroshi; Ohashi, Hiromu

CORPORATE SOURCE: Fac. Pharm. Sci., Nagasaki Univ., Nagasaki, Japan

SOURCE: Phytochemistry (Elsevier) (1983), 22(3), 679-80  
 CODEN: PYTCAS; ISSN: 0031-9422

DOCUMENT TYPE: Journal

LANGUAGE: English

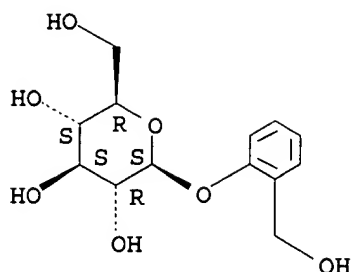
AB Salicin and isosalicin were identified as a product of glucosylation of **salicyl** alc. in *Lithospermum erythrorhizon* suspension cultures, while in *Datura innoxia* suspension cultures only isosalicin was isolated as a glucosylation product. In suspension cultures from 7 different plant species examd., *Gardenia jasminoides* and *L. erythrorhizon* cultured cells could produce salicin from **salicyl** alc. while others produced predominantly isosalicin.

IT 138-52-3  
 RL: FORM (Formation, nonpreparative)  
 (formation of, in plant cell cultures)

RN 138-52-3 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L5 ANSWER 27 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1971:61582 CAPLUS

DOCUMENT NUMBER: 74:61582

TITLE: Barks of the family Salicaceae. XXVI. Hot water extractives of the bark and leaves of *Populus deltoides*

AUTHOR(S): Pearl, Irwin A.; Darling, Stephen F.

CORPORATE SOURCE: Inst. Paper Chem., Appleton, Wis., USA

SOURCE: Can. J. Chem. (1971), 49(1), 49-55

CODEN: CJCHAG

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The hot water extractives of the fresh smooth green bark and the fresh leaves of a *P. deltoides* tree cut in June and homogenized in EtOH were extd. fractionally with EtOAc, and the individual EtOAc exts. were fractionated by elution chromatog. with water, 20% EtOH, and 50% EtOH on polyamide columns. Important components found in the bark were salicortin, salicin, **salicyl alc.**, pyrocatechol, .omega.-salicyloylsalicin, grandidentatin, grandidentoside, populoside, trichocarposide, and 6-methyldihydroquercetin. Important components found in the leaves were salicortin, salicin, **salicyl alc.**, pyrocatechol, 1-O-p-coumaroyl-.beta.-D-glucoside, populoside, .omega.-salicyloylsalicin, chrysin-7-glucoside, and a new glucoside, deltoidin, which has been identified as 2-O-salicyloylsalicin.

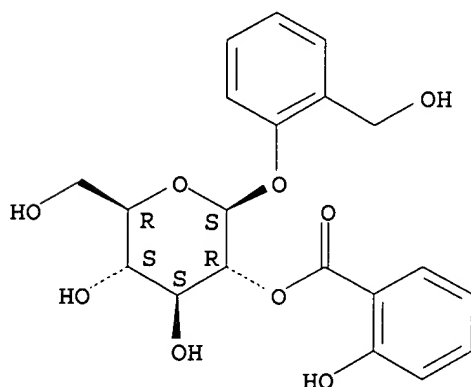
IT 31025-54-4

RL: BIOL (Biological study)  
(a new glycoside)

RN 31025-54-4 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl, 2-(2-hydroxybenzoate)  
(9CI) (CA INDEX NAME)

Absolute stereochemistry.



IT 99-17-2 138-52-3 17063-94-4 31025-52-2

RL: BOC (Biological occurrence); BIOL (Biological study); OCCU

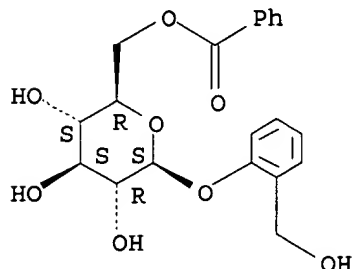
(Occurrence)

(of *Populus deltoides*)

RN 99-17-2 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl, 6-benzoate (9CI) (CA INDEX NAME)

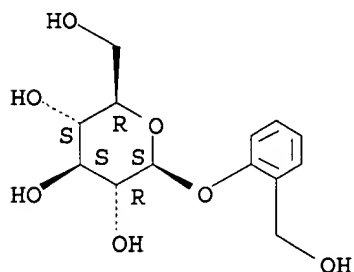
Absolute stereochemistry.



RN 138-52-3 CAPLUS

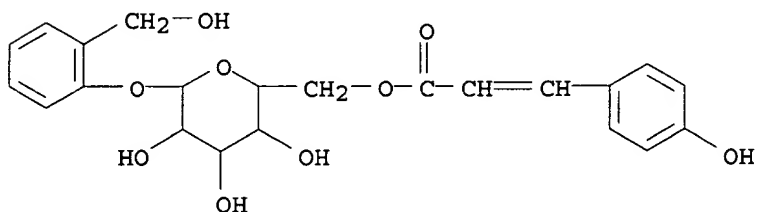
CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 17063-94-4 CAPLUS

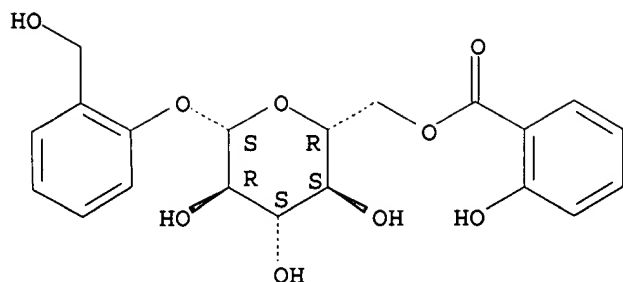
CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl, 6-[3-(4-hydroxyphenyl)-2-propenoate] (9CI) (CA INDEX NAME)



RN 31025-52-2 CAPLUS

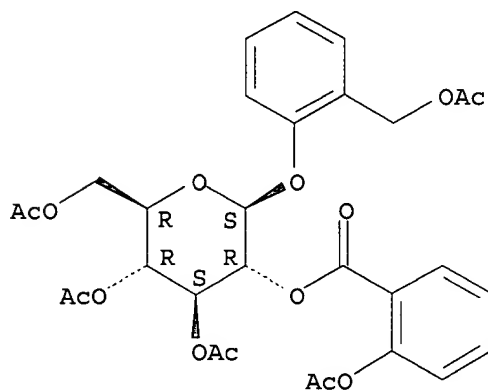
CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl, 6-(2-hydroxybenzoate) (9CI) (CA INDEX NAME)

Absolute stereochemistry.



IT 31025-55-5P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (prepn. of)  
 RN 31025-55-5 CAPLUS  
 CN Deltoidin, pentaacetate (8CI) (CA INDEX NAME)

Absolute stereochemistry.



L5 ANSWER 28 OF 36 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1970:86439 CAPLUS  
 DOCUMENT NUMBER: 72:86439  
 TITLE: Barks of the family Salicaceae. XXIV. Further investigations of the hot water extractives of Populus grandidentata bark  
 AUTHOR(S): Erickson, Richard L.; Pearl, Irwin A.; Darling, Stephen F.  
 CORPORATE SOURCE: Div. of Natur. Mater. and Syst., Inst. of Paper Chem., Appleton, Wis., USA  
 SOURCE: Tappi (1970), 53(2), 240-4  
 CODEN: TAPPAP  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB The bark of a P. grandidentata tree was sepd. into 4 tissue layers. The 4 layers and whole bark were analyzed for org. solvent and water extractives and for traditional anal. components. They were each subjected to hot water extn., and the hot water exts. were fractionated by ethyl acetate extn. and polyamide chromatog. with water and step-gradient aq. ethanol elution. Fractionation yielded cryst. salicyl alc., pyrocatechol, salicin, salicortin, 1-O-p-coumaroyl-.beta.-D-glucose, populin, tremuloidin, grandidentatin, salireposide, and 2 new glucosides, grandidentoside and populoside. These 2 new glucosides are both derivs. of caffeic acid. Individual components were not restricted to specific tissue layers, and no advantage was found for primary tissue sepn. in order to obtain any single component. The effect of lead subacetate treatment on the hot water extractives was studied and found to cause



marked changes in the nature of the materials isolated.

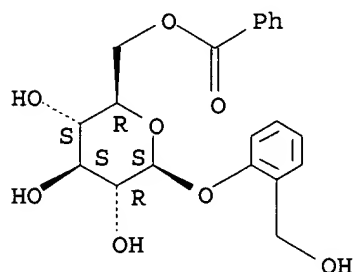
IT 99-17-2 138-52-3 529-66-8 11016-74-3  
16955-55-8

RL: BIOL (Biological study)  
(of bark of *Populus grandidentata*)

RN 99-17-2 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl, 6-benzoate (9CI) (CA  
INDEX NAME)

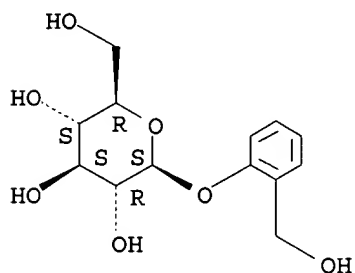
Absolute stereochemistry.



RN 138-52-3 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

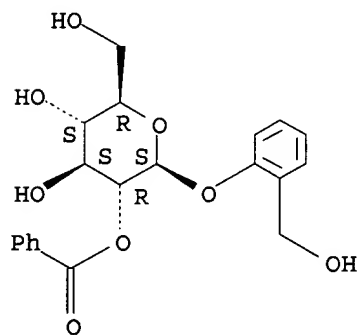
Absolute stereochemistry.



RN 529-66-8 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl, 2-benzoate (9CI) (CA  
INDEX NAME)

Absolute stereochemistry.

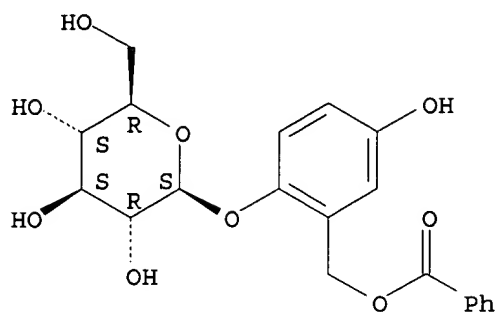


RN 11016-74-3 CAPLUS

RN 16955-55-8 CAPLUS

CN .beta.-D-Glucopyranoside, 2-[(benzoyloxy)methyl]-4-hydroxyphenyl (9CI)  
(CA INDEX NAME)

Absolute stereochemistry.



L5 ANSWER 29 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1969:35070 CAPLUS

DOCUMENT NUMBER: 70:35070

TITLE: Barks of the family Salicaceae. XVIII. Hot-water extractives of the brown bark of *Populus trichocarpa*

AUTHOR(S): Pearl, Irwin A.; Darling, Stephen F.

CORPORATE SOURCE: Lignin Chem. Group, Inst. Paper Chem., Appleton, Wis., USA

SOURCE: Tappi (1968), 51(11)(Pt. 1), 537-9

CODEN: TAPPAP

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The hot-water extractives of the *P. trichocarpa* bark were extd. fractionally with EtAcO and the individual exts. were chromatographed on a polyamide column. The 1st ext. contained salicin, m. 195-7.degree.; trichocarpin, m. 135-6.degree.; salireposide; **salicyl** alc., m. 83-4.degree.; pyrocatechol, m. 104-5.degree.; and small amts. of trichoside, 2,6-dimethoxybenzoquinone m. 251-2.degree., and cinnamic acid m. 132-4.degree.. The 2nd ext. yielded no cryst. products.

IT 138-52-3 16955-55-8

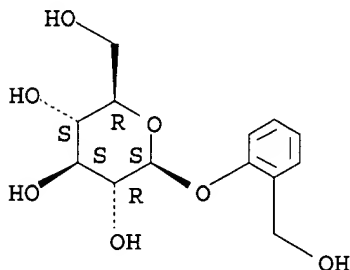
RL: BOC (Biological occurrence); BIOL (Biological study); OCCU (Occurrence)

(of *Populus trichocarpa*)

RN 138-52-3 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

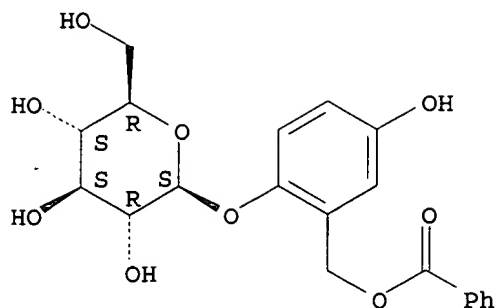
Absolute stereochemistry.



RN 16955-55-8 CAPLUS

CN .beta.-D-Glucopyranoside, 2-[(benzoyloxy)methyl]-4-hydroxyphenyl (9CI)  
(CA INDEX NAME)

Absolute stereochemistry.



L5 ANSWER 30 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1968:493645 CAPLUS

DOCUMENT NUMBER: 69:93645

TITLE: Barks of the family Salicaceae. XIX. Continued studies on the hot water extractives of *Populus balsamifera* bark

AUTHOR(S): Pearl, Irwin A.; Darling, Stephen F.

CORPORATE SOURCE: Inst. of Paper Chem., Appleton, Wis., USA

SOURCE: Phytochemistry (1968), 7(10), 1851-3

CODEN: PYTCAS

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The hot water extractives of the smooth green bark of *P. balsamifera* cut in July were extd. fractionally with EtOAc, and the individual EtOAc exts. were fractionated by elution chromatog. with water on a polyamide column. Cryst. products were salicin, **salicyl alc.**, pyrocatechol, 2,6-dimethoxy-p-benzoquinone, trichocarpin, salireposide, cinnamic acid, and azelaic acid. This is the first report of azelaic acid in the bark of any tree. The obvious similarity between the components found in this *P. balsamifera* bark with those found previously in a *P. trichocarpa* bark suggested a close relation between these 2 species.

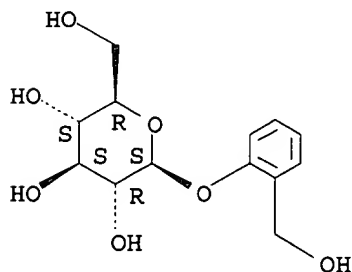
IT 138-52-3 16955-55-8

RL: BIOL (Biological study)  
(in *Populus balsamifera* bark)

RN 138-52-3 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

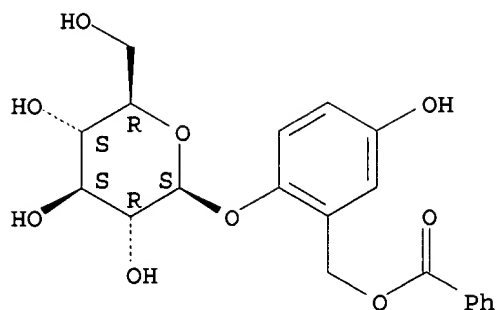
Absolute stereochemistry.



RN 16955-55-8 CAPLUS

CN .beta.-D-Glucopyranoside, 2-[(benzoyloxy)methyl]-4-hydroxyphenyl (9CI)  
(CA INDEX NAME)

Absolute stereochemistry.



L5 ANSWER 31 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1968:493644 CAPLUS

DOCUMENT NUMBER: 69:93644

TITLE: Leaves of the family Salicaceae. XI. The hot water extractives of the leaves of *Populus balsamifera* Pearl, Irwin A.; Darling, Stephen F.  
 CORPORATE SOURCE: Inst. of Paper Chem., Appleton, Wis., USA  
 SOURCE: Phytochemistry (1968), 7(10), 1845-9  
 CODEN: PYTCAS

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The hot water extractives of fresh leaves from *P. balsamifera* trees cut in May and in September were extd. fractionally with EtOAc, and the EtOAc exts. were fractionated by elution chromatog. with water on a polyamide column. Cryst. compds. isolated were salicin, **salicyl alc.**, pyrocatechol, (-)-3-hydroxy-5-phenyl-valeric acid (I), trichocarpin, cinnamic acid, and p-coumaric acid. Yields of all identified products were much smaller in the September than in the May leaves. This is the first report of cinnamic acid, p-coumaric acids, and I in the leaves of any *Populus* species and the first report of I in any plant source.

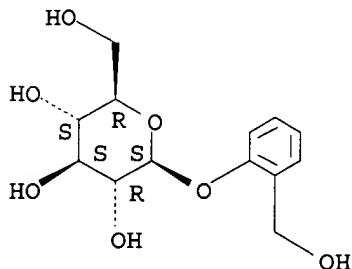
IT 138-52-3

RL: BIOL (Biological study)  
 (in *Populus balsamifera* leaves)

RN 138-52-3 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L5 ANSWER 32 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1967:514359 CAPLUS

DOCUMENT NUMBER: 67:114359

TITLE: Barks of the family Salicaceae. XIII. Hot-water extractives of the green bark of *Populus trichocarpa* Estes, Timothy K.; Pearl, Irwin A.  
 AUTHOR(S):  
 CORPORATE SOURCE: Inst. of Paper Chem., Appleton, Wis., USA  
 SOURCE: Tappi (1967), 50(7), 318-24  
 CODEN: TAPPAP

DOCUMENT TYPE: Journal  
LANGUAGE: English

GI For diagram(s), see printed CA Issue.

AB cf. CA 65: 9006c. The oven-dry ground bark of *P. trichocarpa* (1.5 kg.) was extd. with 20 l. hot H<sub>2</sub>O, the ext. filtered over Celite, and concd. in vacuo to .apprx.2 l. contg. 16% of the bark. The ext. was exhaustively extd. with CHCl<sub>3</sub>, Et<sub>2</sub>O, and EtOAc, giving the extractives I (8%), II (10%), and III (20%), resp. The final raffinate (IV) contained 62% of the hot H<sub>2</sub>O extractives. I was triturated with EtOH and the waxy residue discarded. I was then sepd. with Pb subacetate into 17% of a "Pb-sol." fraction, Ia, and 49% of a "Pb-insol." fraction, Ib. By polyamide chromatog. (P.C.) of Ia, salicin (V), **salicyl alc.** (VI), and tremuloidin (VII) and a mixt. of trichocarpin (VIII) and salireposide (IX) were isolated. P.C. of Ib indicated the presence of pyrocatechol, V, VI, VIII, and IX. Acid hydrolysis of I gave no salicyloylsalicin deriv. P.C. of II gave VIII, IX, p-coumaric acid (X), and trichocarposide (XI), m. 180-2.degree. (H<sub>2</sub>O), [ $\alpha$ ]<sub>D</sub> -11.4.degree. (c 2.3, 80% Me<sub>2</sub>CO). Pb subacetate treatment of II gave VIII, IX, X, and XI. Pb subacetate and P.C. of II gave VIII, IX, X, and XI. Mild hydrolysis and P.C. of III indicated the presence of salicyloylsalicin-2 benzoate and X. P.C. of IV indicated the presence of glucose, fructose, and sucrose. Alk. hydrolysis of XI gave III and X; periodate oxidn. of XI consumed 2 moles with the liberation of 1 mole HCO<sub>2</sub>H. Hydrolysis of XI with .beta.-glucosidase gave no glucose. 21 references.

IT 138-52-3 529-66-8 16955-55-8

17063-94-4 29253-74-5

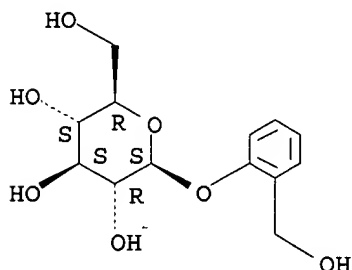
RL: BIOL (Biological study)

(from *Populus trichocarpa* bark)

RN 138-52-3 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

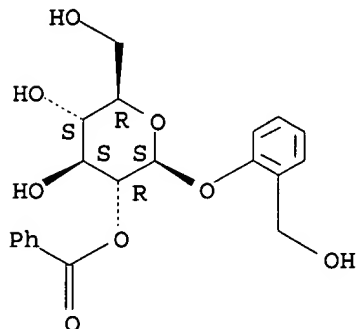
Absolute stereochemistry.



RN 529-66-8 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl, 2-benzoate (9CI) (CA INDEX NAME)

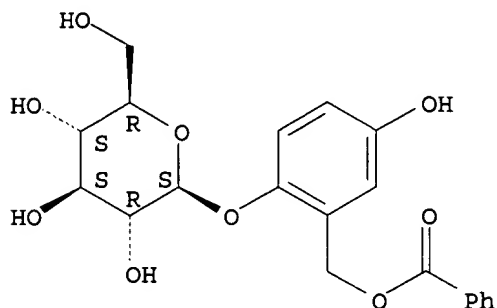
Absolute stereochemistry.



RN 16955-55-8 CAPLUS

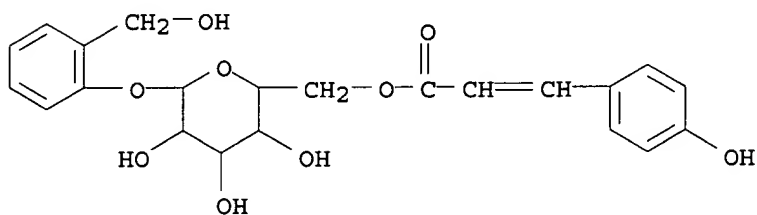
CN .beta.-D-Glucopyranoside, 2-[(benzoyloxy)methyl]-4-hydroxyphenyl (9CI)  
(CA INDEX NAME)

Absolute stereochemistry.



RN 17063-94-4 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl, 6-[3-(4-hydroxyphenyl)-2-propenoate] (9CI) (CA INDEX NAME)



RN 29253-74-5 CAPLUS

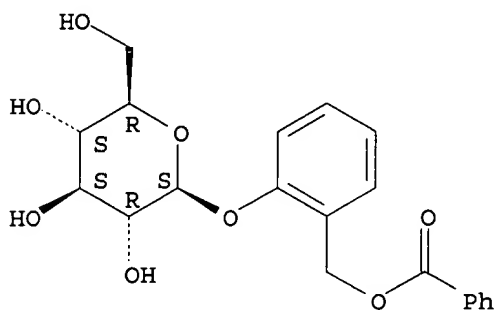
CN Salicin, .alpha.-benzoate monosalicylate (8CI) (CA INDEX NAME)

CM 1

CRN 23096-08-4

CMF C20 H22 O8

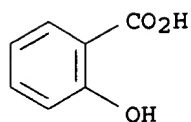
Absolute stereochemistry.



CM 2

CRN 69-72-7

CMF C7 H6 O3



L5 ANSWER 33 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1967:73321 CAPLUS

DOCUMENT NUMBER: 66:73321

TITLE: Pathways of **salicyl** alcohol and salicin formation in *Salix purpurea*

AUTHOR(S): Zenk, Meinhard H.

CORPORATE SOURCE: Univ. Munich, Munich, Ger.

SOURCE: Phytochemistry (1966), 6(2), 245-52

CODEN: PYTCAS

DOCUMENT TYPE: Journal

LANGUAGE: English

AB In expts. to verify that free **salicyl** alc. (I) cannot be the direct precursor of salicin (II) and to prove that salicylic acid .beta.-glucoside is reduced to II, it was demonstrated that I was formed in leaf tissue of *S. purpurea* from phenylpropanoid compds. rather than from acetate or glucose. .beta.-Labeled o-coumaric acid proved to be the best precursor of this alc., being incorporated to .apprx.22%, while salicylic acid and salicylic acid .beta.-glucoside were not reduced to I or II. Benzoic acid and benzyl alc. were incorporated into II. In *Helianthus annuus*, almost 100% of the I administered was incorporated into o-hydroxybenzyl glucoside, indicating that neither the hydroxylation of benzoic acid nor of benzyl alc. could be the first step in the conversion of these compds. to II. Benzoic acid is probably reduced and benzyl alc. oxidized to benzaldehyde, which is o-hydroxylated to salicylaldehyde. The aldehyde in turn could be glucosylated to salicylaldehyde glucoside (helicin, III) which in turn is easily reduced further to II. *Salix* leaf disks were incubated with labeled benzoic acid for 8 hrs., the glucoside fraction isolated, and the labeled hydrazone fraction subjected to thin-layer chromatography, from which the pool size of III inside the cell was calcd. to be in the order of 3 .times. 10<sup>-7</sup>M, strongly supporting the assumption that III is also an intermediate in the formation of II. Pathways for the production of II from cinnamic acid via o-coumaric acid, salicyloyl-CoA, salicylaldehyde, and III and from benzoic acid via benzaldehyde, salicylaldehyde, and III were established. 22 references.

IT 138-52-3

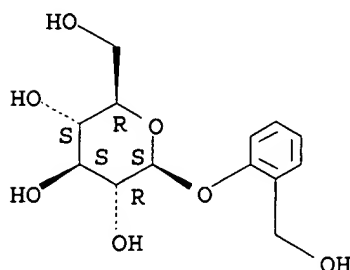
RL: FORM (Formation, nonpreparative)

(formation of, pathways in)

RN 138-52-3 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.

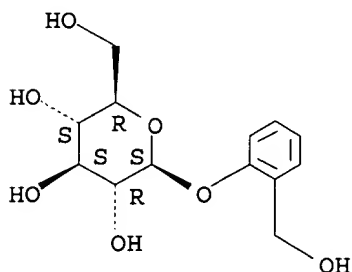


L5 ANSWER 34 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1966:405479 CAPLUS

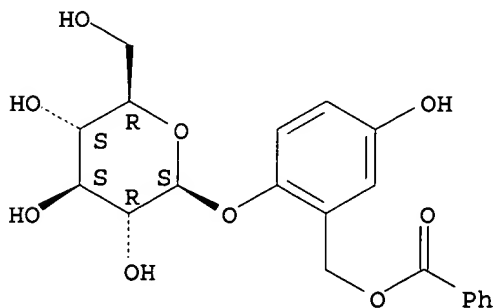
DOCUMENT NUMBER: 65:5479  
 ORIGINAL REFERENCE NO.: 65:1042d-f  
 TITLE: Barks of the family Salicaceae. XI. Studies on the hot water extractives of the green bark of *Populus balsamifera*  
 AUTHOR(S): Pearl, Irvin A.; Pottenger, Charles R.  
 CORPORATE SOURCE: Inst. Paper Chem., Appleton, WI  
 SOURCE: Tappi (1966), 49(4), 152-5  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB cf. CA 64, 8644g. The bark (1615 g., airdry) of *P. balsamifera* was extd. with 20 l. hot H<sub>2</sub>O, the ext. concd. in vacuo to 1700 ml., filtered through Celite, and a part contg. 200 g. solids exhaustively extd. with CHCl<sub>3</sub>. Evapn. of the CHCl<sub>3</sub> ext. gave 6.5 g. CHCl<sub>3</sub>-sol. material (A). The aq. soln., after being freed of CHCl<sub>3</sub>, was extd. with EtOAc and the ext. evapd., giving 64.8 g. (4.5% of the bark) residue (B). The residual aq. soln. contained 119 g. or 8.7% material. (A) was treated with Pb subacetate but neither the ppt. nor the aq. filtrate, after being deleded, gave any identifiable glucosides. The sugar-free (B), before and after treatment with Pb subacetate, was subjected to column chromatography on polyamide according to Thieme (CA 59, 14225e; 61, 12244f, 12329d). The column was eluted first with H<sub>2</sub>O then with increasing concns. of MeOH. From the eluates were isolated: 0.95% salicin, m. 196-7.degree., 0.57% trichocarpin, m. 135-6.degree., [ $\alpha$ .]20D -44.6.degree. (c 1.46, MeOH), and 0.13% salireposide, sintering 154-6.degree., m. 205-6.degree.. The presence of other glucosides of **salicyl** and **gentisyl** alcs. and **gentisic acid** was shown by thin-layer chromatography. 12 references.  
 IT 138-52-3, Salicin 16955-55-8, Salireposide  
 (in *Populus balsamifera* bark)  
 RN 138-52-3 CAPLUS  
 CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.

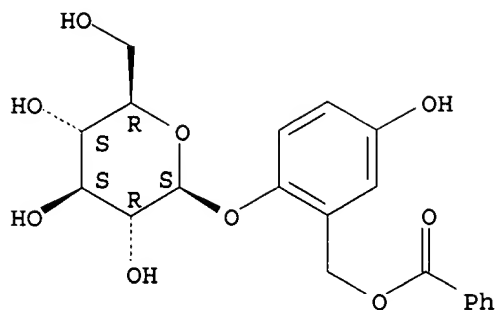


RN 16955-55-8 CAPLUS  
 CN .beta.-D-Glucopyranoside, 2-[(benzoyloxy)methyl]-4-hydroxyphenyl (9CI)  
 (CA INDEX NAME)

Absolute stereochemistry.







L5 ANSWER 35 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1963:443233 CAPLUS

DOCUMENT NUMBER: 59:43233

ORIGINAL REFERENCE NO.: 59:7853f-g

TITLE: Isolation of a new phenol glucoside from *Salix fragilis*

AUTHOR(S): Thieme, H.

CORPORATE SOURCE: Univ. Leipzig, Germany

SOURCE: Naturwissenschaften (1963), 50, 477

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB A new phenol glucoside, fragilin, (I), was isolated from the leaves and bark of *S. fragilis*, *S. alba*, *S. purpurea*, *S. triandra*, and *S. viminalis* by the continuous extn. with EtOAc. I, colorless, m. 177-9.degree. (H<sub>2</sub>O), [ $\alpha$ .]15D -38.7.degree. (c 1.35, H<sub>2</sub>O), R<sub>f</sub> 0.49 in BuOH-xylene-AcOH-H<sub>2</sub>O (6:4:2:8), (salicin, 0.29), gave pos. Millon reaction and was not hydrolyzed by emulsion. HCl (3%) hydrolysis gave glucose and salicyl alc. or its dehydration product. Ba(OH)<sub>2</sub> hydrolysis (2%, 1 hr., 100.degree.) gave salicin. Alk. hydrolysis (Reid and Lederer, CA 46, 1923a) gave AcOH. The infrared spectrum showed an ester linkage. Fragilin is a mono-acetyl deriv. of salicin.

IT 98395-87-0, Salicin, acetate  
(from willow)

RN 98395-87-0 CAPLUS

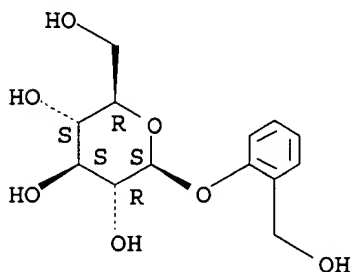
CN Salicin, acetate (7CI) (CA INDEX NAME)

CM 1

CRN 138-52-3

CMF C13 H18 O7

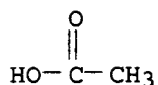
Absolute stereochemistry.



CM 2

CRN 64-19-7

CMF C2 H4 O2



L5 ANSWER 36 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1962:26757 CAPLUS

DOCUMENT NUMBER: 56:26757

ORIGINAL REFERENCE NO.: 56:5126b-e

TITLE: The barks of the family Salicaceae. IV. Preliminary evaluation for glucosides of barks of several species of the genus *Populus*

AUTHOR(S): Pearl, Irwin A.; Darling, Stephen F.; DeHaas, Herman; Loving, Ben A.; Scott, Donald A.; Turley, Roy H.; Werth, Richard E.

CORPORATE SOURCE: Inst. Paper Chem., Appleton, WI

SOURCE: Tappi (1961), 44, 475-8

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB cf. CA 55, 10881g.-The barks of *Populus tremuloides*, *P. grandidentata*, *P. tacamahaca*, *P. heterophylla*, *P. deltoides*, and *P. trichocarpa* were extd. with hot H<sub>2</sub>O, and the exts. were clarified by treatment with basic Pb(OAc)<sub>2</sub>, freed of Pb, and concd. These concd. solns. were examd. for their glucoside- and phenolic-compd. content by solvent fractionation and by chromatographic and countercurrent distribution techniques. Salicin was present in all barks studied and salireposide in all but one. Tremuloidin was found only in the barks of *P. tremuloides* and *P. grandidentata*. These same 2 barks were the only ones tested that yielded large quantities of extractives and appeared to be the only ones suitable for large-scale glucoside isolation studies. Paper chromatography of all bark exts. indicated the presence of many as yet unknown glucosides, and some appeared to be present in substantial amts. In addn., salicyl alc., gentisyl alc., p-hydroxybenzoic acid, p-coumaric acid, vanillic acid, syringic acid, and vanillin were found in the extractives. The presence of these compds. suggests that glucosides or glucoside esters of these compds. might be present in the hot-H<sub>2</sub>O extractives of these barks.

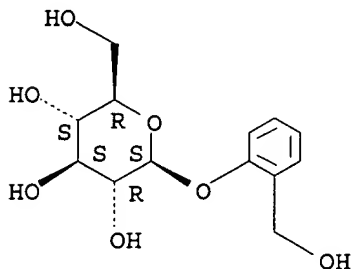
IT 138-52-3, Salicin 529-66-8, Tremuloidin  
16955-55-8, Salireposide

(from poplar bark)

RN 138-52-3 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl (9CI) (CA INDEX NAME)

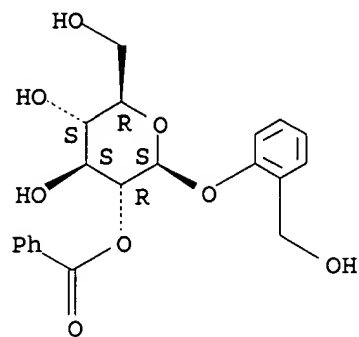
Absolute stereochemistry.



RN 529-66-8 CAPLUS

CN .beta.-D-Glucopyranoside, 2-(hydroxymethyl)phenyl, 2-benzoate (9CI) (CA INDEX NAME)

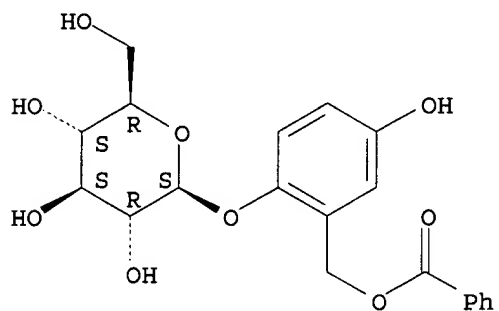
Absolute stereochemistry.



RN 16955-55-8 CAPLUS

CN .beta.-D-Glucopyranoside, 2-[(benzoyloxy)methyl]-4-hydroxyphenyl (9CI)  
(CA INDEX NAME)

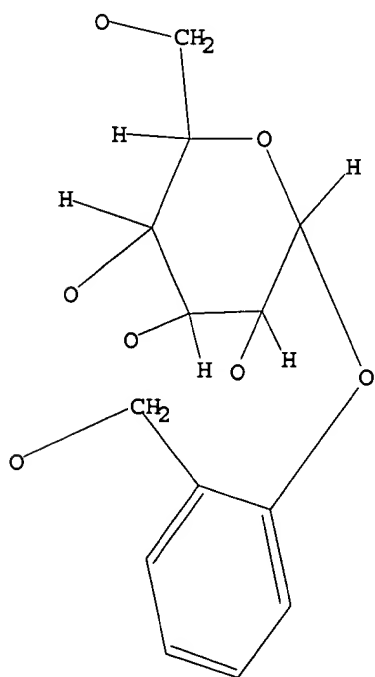
Absolute stereochemistry.

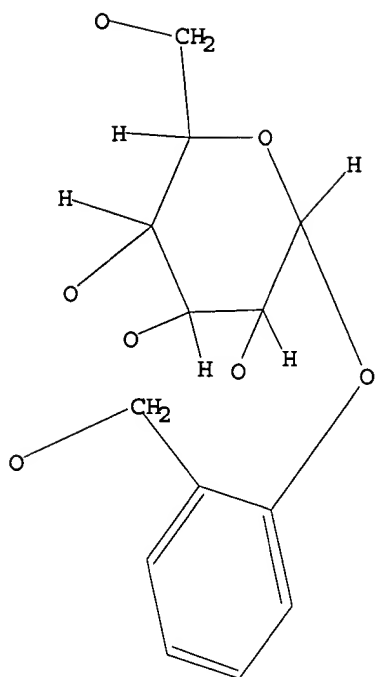


=> dis que

L1

STR





Structure attributes must be viewed using STN Express query preparation.

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L3      175 SEA FILE=REGISTRY SSS FUL L1
L4      760 SEA FILE=CAPLUS ABB=ON  PLU=ON  L3
L5      36  SEA FILE=CAPLUS ABB=ON  PLU=ON  L4 AND SALICYL
L6      36  DUP REM L5 (0 DUPLICATES REMOVED)
```

=> d his

(FILE 'HOME' ENTERED AT 18:48:53 ON 22 NOV 2002)

FILE 'REGISTRY' ENTERED AT 18:49:03 ON 22 NOV 2002

```
L1      STRUCTURE UPLOADED
L2      1 S L1 SSS SAM
L3      175 S L1 SSS FULL
```

FILE 'CAPLUS' ENTERED AT 18:50:43 ON 22 NOV 2002

```
L4      760 S L3
L5      36 S L4 AND SALICYL
L6      36 DUP REM L5 (0 DUPLICATES REMOVED)
```